CLAIMS

1. An optical disk recording method wherein a beam is irradiated on an optical disk so that recording or write once of information is carried out, the optical disk recording method comprising the step of:

controlling a recording velocity at the time of starting the write once, when the write once of information is carried out on the optical disk where the write once or rewriting can be carried out, the optical disk having a part where information is already recorded.

2. The optical disk recording method as claimed in claim 1,

wherein recording is carried out by a Constant Angular Velocity (CAV) method at the time of normal recording; and

the recording velocity at the time of starting the write once is controlled, at the time when the write *once* of information is carried out on the optical disk where the write once or rewriting can be carried out, the optical disk having both the part where information is already recorded and a part

where information is physically not recorded.

3. The optical disk recording method as claimed in claim 1,

wherein recording is carried out by a Constant Angular Velocity (CAV) method at the time of normal recording; and

a recording method at the time of starting the write once is changed from the CAV method to a Constant Linear Velocity (CLV) method, at the time when the write once of information is carried out on the optical disk where the write once or rewriting can be carried out, the optical disk having both the part where information is already recorded and a part where information is physically not recorded.

4. The optical disk recording method as claimed in claim 3,

wherein recording is carried out by the CLV method using a plurality of recording linear velocities; and

the recording velocity at the time of starting the write once is controlled by the CLV method using one of the recording linear velocities corresponding to the optical disk.

5. The optical disk recording method as claimed in claim 4,

wherein the recording velocity at the time of staring the write once is controlled by the CLV method using a linear velocity the same as the recording velocity at the time when an Optimum Power Calibration (OPC) is carried out at an internal or external circumferential part of the optical disk.

6. The optical disk recording method as claimed in claim 4,

wherein the recording velocity at the time of starting the write once is controlled by the CLV method using a lowest recording linear velocity among the recording linear velocities corresponding to the optical disk.

7. The optical disk recording method as claimed in claim 5,

wherein the recording velocity X at the time of starting the write once is defined by Y<X< (Y+ (Z-Y)/2) in a case where a lowest recording linear velocity corresponding to the optical disk is defined as Y and a highest recording linear velocity corresponding to the optical disk is defined as Z;

and

a recording velocity is controlled so as to be the same as the recording velocity when the write once is not carried out, in a case where the recording velocity at the time of staring the write once is equal to or the less than X.

8. The optical disk recording method as claimed in claim 5,

wherein the recording velocity at the time of starting the write once is controlled so as to be the same recording velocity as a recording velocity when the write once is not carried out, in a case of S<R at a part where the write once is started wherein a distance in a radial direction from a position where the recording is started at the internal circumferential part of the optical disk to a position where the write once is started is defined as S, a distance from a most internal circumferential recording starting position to a most external circumferential recording completion position is defined as T, and R being constant has a value less than T/2.

9. An optical disk recording and reading

apparatus, comprising:

a spindle motor configured to rotate an optical disk;

a control part configured to control the spindle motor so that the optical disk is rotated by a Constant Angular Velocity (CAV) method or a Constant Linear Velocity (CLV) method; and

an optical pick up configured to radiate a beam on the optical disk so that recording or write once of information is carried out;

wherein the control part controls a recording velocity at the time of starting the write once, when the write once of information is carried out on the optical disk where the write once or rewriting can be carried out, the optical disk having a part where information is already recorded.

10. The optical disk recording and reading apparatus as claimed in claim 9,

wherein recording is carried out by the CAV method at the time of normal recording; and

the control part controls the recording velocity at the time of starting the write once at the time when the write once of information is carried out on the optical disk where the write once

or rewriting can be carried out, the optical disk having both the part where information is already recorded and a part where information is physically not recorded.

11. The optical disk recording and reading apparatus as claimed in claim 9,

wherein recording is carried out by the CAV method at the time of normal recording; and

the control part changes a recording method at the time of starting the write once from the CAV method to the CLV method, at the time when the write once of information is carried out on the optical disk where the write once or rewriting can be carried out, the optical disk having both the part where information is already recorded and a part where information is physically not recorded.

12. The optical disk recording and reading apparatus as claimed in claim 11,

wherein recording is carried out by the CLV method using a plurality of recording linear velocities; and

the control part controls the recording velocity at the time of starting the write once by

the CLV method using one of the recording linear velocities corresponding to the optical disk.

13. The optical disk recording and reading apparatus as claimed in claim 12,

wherein the control part controls the recording velocity at the time of starting the write once by the CLV method using a linear velocity the same as the recording velocity at the time when an Optimum Power Calibration (OPC) is carried out at an internal or external circumferential part of the optical disk.

14. The optical disk recording and reading apparatus as claimed in claim 12,

wherein the control part controls the recording velocity at the time of starting the write once by the CLV method using a lowest recording linear velocity among the recording linear velocities corresponding to the optical disk.

15. The optical disk recording and reading apparatus as claimed in claim 13,

wherein the recording velocity X at the time of starting the write once is defined by Y<X< (Y+ (Z-

Y)/2) in a case where a lowest recording linear velocity corresponding to the optical disk is defined as Y and a highest recording linear velocity corresponding to the optical disk is defined as Z; and

a recording velocity is controlled so as to be the same as the recording velocity when the write once is not carried out, in a case where the recording velocity at the time of starting the write once is equal to or the less than x.

16. The optical disk recording and reading apparatus as claimed in claim 13,

wherein the recording velocity at the time of starting the write once is controlled so as to be the same recording velocity as a recording velocity when the write once is not carried out, in a case of S<R at a part where the write once is started wherein a distance in a radial direction from a position where the recording is started at the internal circumferential part of the optical disk to a position where the write once is started is defined as s, a distance from a most internal circumferential recording starting position to a most external circumferential recording completion position is

defined as T, and R being constant has a value less than T/2.